CLAIMS

Please amend the claims 1, 9, 11, 16 and 22 and cancel claim 5 as shown below:

1. (Currently Amended): A method for planning minimally invasive direct coronary artery bypass (MIDCAB) for a patient, the method comprising:

obtaining acquisition data from a medical imaging system;

generating a 3D model of the coronary arteries and one or more cardiac chambers of interest of the patient;

identifying one or more anatomical landmarks on said 3D model and inserting corresponding geometric markers thereat, utilizing user input at an operator console;

registering saved views of said 3D model on a workstation of an interventional system ~~using said geometric markers~~, said saved views of said 3D model having said geometric markers; and

visualizing one or more of said registered saved views on a display screen of ~~with~~ said interventional system.

2. (Original): The method of claim 1, further comprising identifying, from said 3D model, orientation, size and dimensions of the coronaries and ventricles.

3. (Original): The method of claim 1, wherein said obtaining acquisition data is implemented with protocols directed for imaging the coronary arteries and ventricles.

4. (Original): The method of claim 3, further comprising utilizing post processing software to process said acquisition data so as to generate interior views of the coronary arteries and ventricles.

5. (Cancelled).

6. (Original): The method of claim 1, further comprising registering MIDCAB instruments on said interventional system.

7. (Original): The method of claim 1, further comprising measuring size, extent and number of lesions in the coronary arteries needing MIDCAB.

8. (Original): The method of claim 1, wherein said obtaining acquisition data is EKG gated.

9. (Currently Amended): A method for planning minimally invasive direct coronary artery bypass (MIDCAB) for a patient, the method comprising:

obtaining acquisition data from a medical imaging system using a protocol directed toward the coronary arteries and left ventricle;

segmenting said acquisition data using a 3D protocol so as to visualize the coronary arteries and the left ventricle;

generating a 3D model of the coronary arteries and the left ventricle of the patient;

identifying one or more anatomical landmarks on said 3D model and inserting corresponding geometric markers thereat, utilizing user input at an operator console;

registering saved views of said 3D model on a workstation of an interventional system ~~using said geometric markers~~, said saved views of said 3D model having said geometric markers;

visualizing one or more of said registered saved views on a display screen of ~~with~~ said interventional system; and

identifying, from said 3D model, orientation and any anomalies associated with the coronary arteries and the left ventricle.

10. (Original): The method of claim 9, further comprising utilizing post processing software to process said acquisition data so as to generate interior views of the coronary arteries and ventricles.

11. (Currently Amended): The method of claim 10, wherein said 3D model and said interior views are visualized through ~~a~~ the display screen associated with said interventional system.

12. (Original): The method of claim 9, wherein said obtaining acquisition data is EKG gated.

13. (Original): The method of claim 9, further comprising registering MIDCAB instruments on said interventional system.

14. (Original): The method of claim 9, further comprising measuring size, extent and number of lesions in the coronary arteries needing MIDCAB.

15. (Original): The method of claim 9, wherein said medical imaging system is one of a computed tomography system, a magnetic resonance imaging system and an ultrasound system.

16. (Currently Amended): A method for planning minimally invasive direct coronary artery bypass (MIDCAB) for a patient, the method comprising:

obtaining acquisition data from a cardiac computed tomography (CT) imaging system using a protocol directed toward the coronary arteries and left ventricle;

segmenting said acquisition data using a 3D protocol so as to visualize the coronary arteries and left ventricle, including interior views of the coronary arteries;

generating a 3D model of the coronary arteries and left ventricle of the patient;

identifying one or more anatomical landmarks on said 3D model and inserting corresponding geometric markers thereat, utilizing user input at an operator console;

registering saved views of said 3D model on a fluoroscopy system ~~using said geometric markers~~, said saved views of said 3D model having said geometric markers; and

visualizing one or more of said registered saved views with said fluoroscopy system; and

identifying, from said 3D model, orientation and any anomalies associated with the coronary arteries and the left ventricle.

17. (Previously Presented): The method of claim 16, further comprising utilizing post processing software to process said acquisition data so as to generate interior views of the coronary arteries and ventricles.

18. (Original): The method of claim 17, wherein said 3D model and said immersible views are visualized through a display screen associated with said fluoroscopy system.

19. (Original): The method of claim 16, wherein said obtaining acquisition data is EKG gated.

20. (Original): The method of claim 16, further comprising registering MIDCAB instruments on said interventional system.

21. (Original): The method of claim 20, further comprising measuring size, extent and number of lesions in the coronary arteries needing MIDCAB.

22. (Currently Amended): A system for planning minimally invasive direct coronary artery bypass (MIDCAB) for a patient, comprising:

a medical imaging system for generating acquisition data;

an image generation subsystem for receiving said acquisition data and generating one or more images and a 3D model of the coronary arteries and the left ventricle of the patient;

an operator console for receiving user input to identify ~~identifying~~ one or more anatomical landmarks on said one or more images or said 3D model and to insert ~~inserting~~ corresponding geometric markers thereat;

a workstation including post processing software for registering saved views of said 3D model on an interventional system ~~using said geometric markers~~, said saved views of said 3D model having said geometric markers; and

wherein said interventional system is configured for visualizing one or more of said registered saved views therewith, quantifying distance and location information for a cardiac point of interest, and identifying an incision location and path for MIDCAB based on said quantified distance and location information for said cardiac point of interest.

23. (Original): The system of claim 22, wherein said image generation subsystem is configured with protocols directed for imaging the coronary arteries and ventricles.

24. (Original): The system of claim 23, wherein said post processing software is further configured to process said acquisition data so as to generate interior views of the coronary arteries and ventricles.

25. (Original): The system of claim 24, further comprising a display screen associated with said interventional system, said display screen for visualizing said 3D model and said interior views.

26. (Original): The system of claim 22, wherein said interventional system is configured for registering MIDCAB instruments therewith.

27. (Original): The system of claim 22, wherein said image generating subsystem is EKG gated.

28. (Previously Presented): The method of claim 1, further comprising:

based on said registered saved views, identifying a location and path of an incision to reduce a size of the incision through a chest wall of the patient for MIDCAB.

29. (Previously Presented): The method of claim 9, further comprising:

based on said orientation and anomalies, identifying a location and path of an incision to reduce a size of the incision through a chest wall of the patient for MIDCAB.

30. (Previously Presented): The method of claim 16, further comprising:

based on said orientation and anomalies, identifying a location and path of an incision to reduce a size of the incision through a chest wall of the patient for MIDCAB.

31. (Previously Presented): The system of claim 22, wherein:

the system is configured for reducing a size of the incision through a chest wall of the patient for MIDCAB.